

SEQUENCE LISTING

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Thr	Asn	Gly	Ala	Ala	Leu	Ser	Asn	Ser	Ala	Ala	Asp	Gly	Leu	Phe	Thr		
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Gly	Asp	Gly	Gly	Ala	Ile	Asp	Ala	Lys	Ser	Leu	Thr	Val	Gln	Gly	Ile		
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gat	cca	gta	gta	agt	ttt	tcc	aga	aat	act	gca	gta	gag	ttt	gat	ggg	1227	
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Phe	Leu	Asn	Asn	Gly	Lys	Thr	Leu	Phe	Leu	Asn	Asn	Val	Ala	Ser	Pro		
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Ser	Asn	Asn	Tyr	Gly	Asp	Gly	Gly	Ala	Ile	Phe	Cys	Lys	Asn	Gly	Ala		
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Gln	Ala	Gly	Ser	Asn	Asn	Ser	Gly	Ser	Val	Ser	Phe	Asp	Gly	Glu	Gly		
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Phe Gly Leu Ala Phe Thr Glu Val Phe Gly Arg Ser Lys Asp Tyr Val			
780	785	790	
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Val Cys Arg Ser Asn His His Ala Cys Ile Gly Ser Val Tyr Leu Ser			
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Phe Ala Glu Glu Ser Asp Val Arg Trp Asp Asn Asn Cys Leu Ala Gly			
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His Glu Ser Phe Thr Glu Glu Gly Asp Gln Ala Arg Ala Phe Lys Ser			
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925	930	935	
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Cys Asp Ala Tyr Arg Thr Ile Ser Gly Thr Glu Thr Thr Leu Leu Ser			
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<400> 2

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Thr	Val	Ile	Gly	Asp	Pro	Ser	Gly	Thr	Thr	Val	Phe	Ser	Ala	Gly	Glu
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Val	Ala	Asn	Cys	Gly	Pro	Val	Gln	Phe	Leu	Arg	Asn	Ile	Ala	Asn	Asp
385				390					395						400
Gly	Gly	Ala	Ile	Tyr	Leu	Gly	Glu	Ser	Gly	Glu	Leu	Ser	Leu	Ser	Ala

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405 410 415
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 Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser Ser Gln Ala Ile
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 Gly Asn Gln His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu Ser Asp
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 Asn Lys Tyr Ser Phe Met Ala Ala Tyr Ile Cys Asp Ala Tyr Arg Thr
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 Ile Ser Gly Thr Glu Thr Thr Leu Leu Ser His Gln Glu Thr Trp Thr
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 <213> Chlamydia sp.

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<222> 12, 15

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<211> 1511

<212> DNA

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 <213> Chlamydia sp.

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<210> 14
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 <213> Chlamydia sp.

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 <212> PRT
 <213> Chlamydia sp.

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 35 40 45
 Thr Val Ile Gly Asp Pro Ser Gly Thr Thr Val Phe Ser Ala Gly Glu
 50 55 60
 Leu Thr Leu Lys Asn Leu Asp Asn Ser Ile Ala Ala Leu Pro Leu Ser
 65 70 75 80
 Cys Phe Gly Asn Leu Leu Gly Ser Phe Thr Val Leu Gly Arg Gly His
 85 90 95
 Ser Leu Thr Phe Glu Asn Ile Arg Thr Thr Asn Gly Ala Ala Leu
 100 105 110
 Ser Asp Ser Ala Asn Ser Gly Leu Phe Thr Ile Glu Gly Phe Lys Glu
 115 120 125
 Leu Ser Phe Ser Asn Cys Asn Pro Leu Leu Ala Val Leu Pro Ala Ala
 130 135 140
 Thr Thr Asn Asn Gly Ser Gln Thr Pro Ser Thr Thr Ser Thr Pro Ser
 145 150 155 160
 Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu Asn Asn Glu
 165 170 175
 Lys Phe Ser Phe Tyr Ser Asn Ser Val Ser Gly Asp Gly Gly Ala Ile
 180 185 190
 Asp Ala Lys Ser Leu Thr Val Gln Gly Ile Ser Lys Leu Cys Val Phe
 195 200 205
 Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys Gln Val Val Thr
 210 215 220
 Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala Phe Val Ala Asn
 225 230 235 240
 Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val Gln Asp Gly Gln
 245 250 255
 Gln Gly Val Ser Ser Ser Thr Ser Thr Asp Pro Val Val Ser Phe
 260 265 270
 Ser Arg Asn Thr Ala Val Glu Phe Asp Gly Asn Val Ala Arg Val Gly
 275 280 285
 Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu Asn Asn Gly Lys
 290 295 300
 Thr Leu Phe Leu Asn Asn Val Ala Ser Pro Val Tyr Ile Ala Ala Glu
 305 310 315 320
 Gln Pro Thr Asn Gly Gln Ala Ser Asn Thr Ser Asp Asn Tyr Gly Asp
 325 330 335
 Gly Gly Ala Ile Phe Cys Lys Asn Gly Ala Gln Ala Ala Gly Ser Asn
 340 345 350
 Asn Ser Gly Ser Val Ser Phe Asp Gly Glu Gly Val Val Phe Phe Ser
 355 360 365
 Ser Asn Val Ala Ala Gly Lys Gly Gly Ala Ile Tyr Ala Lys Lys Leu
 370 375 380

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Ala Asp Tyr Gly Asp Met Ile Phe Asp Gly Asn Leu Lys Arg Thr Ala
      420      425      430
Lys Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser Ser Gln Ala
      435      440      445
Ile Ser Met Gly Ser Gly Gly Lys Ile Thr Thr Leu Arg Ala Lys Ala
      450      455      460
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      465      470      475      480
Asn Gln Pro Ala Gln Ser Ser Glu Pro Leu Lys Ile Asn Asp Gly Glu
      485      490      495
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Gln Asn Val Thr Ile Glu Gln Gly Arg Ile Val Leu Arg Glu Lys Ala
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Lys Leu Ser Val Asn Ser Leu Ser Gln Thr Gly Gly Ser Leu Tyr Met
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Glu Ala Gly Ser Thr Leu Asp Phe Val Thr Pro Gln Pro Pro Gln Gln
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      565      570      575
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      580      585      590
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      595      600      605
Gly Ser Val Thr Ile Ser Gly Pro Ile Phe Phe Glu Asp Leu Asp Asp
      610      615      620
Thr Ala Tyr Asp Arg Tyr Asp Trp Leu Gly Ser Asn Gln Lys Ile Asp
      625      630      635      640
Val Leu Lys Leu Gln Leu Gly Thr Gln Pro Pro Ala Asn Ala Pro Ser
      645      650      655
Asp Leu Thr Leu Gly Asn Glu Met Pro Lys Tyr Gly Tyr Gln Gly Ser
      660      665      670
Trp Lys Leu Ala Trp Asp Pro Asn Thr Ala Asn Asn Gly Pro Tyr Thr
      675      680      685
Leu Lys Ala Thr Trp Thr Lys Thr Gly Tyr Asn Pro Gly Pro Glu Arg
      690      695      700
Val Ala Ser Leu Val Pro Asn Ser Leu Trp Gly Ser Ile Leu Asp Ile
      705      710      715      720
Arg Ser Ala His Ser Ala Ile Gln Ala Ser Val Asp Gly Arg Ser Tyr
      725      730      735
Cys Arg Gly Leu Trp Val Ser Gly Val Ser Asn Phe Phe Tyr His Asp
      740      745      750
Arg Asp Ala Leu Gly Gln Gly Tyr Arg Tyr Ile Ser Gly Gly Tyr Ser
      755      760      765
Leu Gly Ala Asn Ser Tyr Phe Gly Ser Ser Met Phe Gly Leu Ala Phe
      770      775      780
Thr Glu Val Phe Gly Arg Ser Lys Asp Tyr Val Val Cys Arg Ser Asn
      785      790      795      800
His His Ala Cys Ile Gly Ser Val Tyr Leu Ser Thr Lys Gln Ala Leu
      805      810      815
Cys Gly Ser Tyr Val Phe Gly Asp Ala Phe Ile Arg Ala Ser Tyr Gly
      820      825      830
Phe Gly Asn Gln His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu Ser
      835      840      845
Asp Val Cys Trp Asp Asn Asn Cys Leu Val Gly Glu Ile Gly Val Gly
      850      855      860
Leu Pro Ile Val Ile Thr Pro Ser Lys Leu Tyr Leu Asn Glu Leu Arg
      865      870      875      880
Pro Phe Val Gln Ala Glu Phe Ser Tyr Ala Asp His Glu Ser Phe Thr

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 915 920 925
 Pro Asn Lys Tyr Ser Phe Met Gly Ala Tyr Ile Cys Asp Ala Tyr Arg
 930 935 940
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 Thr Thr Asp Ala Phe His Leu Ala Arg His Gly Val Ile Val Arg Gly
 965 970 975
 Ser Met Tyr Ala Ser Leu Thr Ser Asn Ile Glu Val Tyr Gly His Gly
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 <213> Chlamydia sp.

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 35 40 45
 Thr Val Ile Gly Asp Pro Ser Gly Thr Thr Val Phe Ser Ala Gly Glu
 50 55 60
 Leu Thr Leu Lys Asn Leu Asp Asn Ser Ile Ala Ala Leu Pro Leu Ser
 65 70 75 80
 Cys Phe Gly Asn Leu Gly Ser Phe Thr Val Leu Gly Arg Gly His
 85 90 95
 Ser Leu Thr Phe Glu Asn Ile Arg Thr Ser Thr Asn Gly Ala Ala Leu
 100 105 110
 Ser Asp Ser Ala Asn Ser Gly Leu Phe Thr Ile Glu Gly Phe Lys Glu
 115 120 125
 Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val Leu Pro Ala Ala
 130 135 140
 Thr Thr Asn Asn Gly Ser Gln Thr Pro Thr Thr Ser Thr Pro Ser
 145 150 155 160
 Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu Leu Asn Asn Glu
 165 170 175
 Lys Phe Ser Phe Tyr Ser Asn Leu Val Ser Gly Asp Gly Gly Thr Ile
 180 185 190
 Asp Ala Lys Ser Leu Thr Val Gln Gly Ile Ser Lys Leu Cys Val Phe
 195 200 205
 Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys Gln Val Val Thr
 210 215 220
 Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala Phe Ile Ala Asn
 225 230 235 240
 Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val Gln Asp Gly Gln
 245 250 255
 Gln Gly Val Ser Ser Thr Ser Thr Glu Asp Pro Val Val Ser Phe
 260 265 270
 Ser Arg Asn Thr Ala Val Glu Phe Asp Gly Asn Val Ala Arg Val Gly
 275 280 285
 Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu Asn Asn Gly Lys
 290 295 300

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 340 345 350
 Asn Ser Gly Ser Val Ser Phe Asp Gly Glu Gly Val Val Phe Phe Ser
 355 360 365
 Ser Asn Val Ala Ala Gly Lys Gly Gly Ala Ile Tyr Ala Lys Lys Leu
 370 375 380
 Ser Val Ala Asn Cys Gly Pro Val Gln Phe Leu Gly Asn Ile Ala Asn
 385 390 395 400
 Asp Gly Gly Ala Ile Tyr Leu Gly Glu Ser Gly Glu Leu Ser Leu Ser
 405 410 415
 Ala Asp Tyr Gly Asp Ile Ile Phe Asp Gly Asn Leu Lys Arg Thr Ala
 420 425 430
 Lys Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser Ser Gln Ala
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 Ile Ser Met Gly Ser Gly Gly Lys Ile Thr Thr Leu Arg Ala Lys Ala
 450 455 460
 Gly His Gln Ile Leu Phe Asn Asp Pro Ile Glu Met Ala Asn Gly Asn
 465 470 475 480
 Asn Gln Pro Ala Gln Ser Ser Glu Pro Leu Lys Ile Asn Asp Gly Glu
 485 490 495
 Gly Tyr Thr Gly Asp Ile Val Phe Ala Asn Gly Asn Ser Thr Leu Tyr
 500 505 510
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 515 520 525
 Lys Leu Ser Val Asn Ser Leu Ser Gln Thr Gly Gly Ser Leu Tyr Met
 530 535 540
 Glu Ala Gly Ser Thr Leu Asp Phe Val Thr Pro Gln Pro Pro Gln Gln
 545 550 555 560
 Pro Pro Ala Ala Asn Gln Leu Ile Thr Leu Ser Asn Leu His Leu Ser
 565 570 575
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 580 585 590
 Pro Pro Ala Gln Asp Ser His Pro Ala Val Ile Gly Ser Thr Thr Ala
 595 600 605
 Gly Pro Val Thr Ile Ser Gly Pro Phe Phe Phe Glu Asp Leu Asp Asp
 610 615 620
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 Val Leu Lys Leu Gln Leu Gly Thr Gln Pro Ser Ala Asn Ala Pro Ser
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 660 665 670
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 675 680 685
 Leu Lys Ala Thr Trp Thr Lys Thr Gly Tyr Asn Pro Gly Pro Glu Arg
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 <213> Chlamydia sp.

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 65 Gly Ala Ala Leu Ser Asn Ser Ala Ala Asp Gly Leu Phe Thr Ile Glu 60
 Gly Phe Lys Glu Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val 70
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 Ser Thr Pro Ser Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu 90
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 Leu Cys Val Phe Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys 120
 Gln Val Val Thr Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala 130
 Phe Val Ala Asn Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val 140
 150 160 170 180 190 200 205

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210 215 220
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 Ala Arg Val Gly Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu
 260 265 270
 Asn Asn Gly Lys Thr Leu Phe Leu Asn Asn Val Ala Ser Pro Val Tyr
 275 280 285
 Ile Ala Lys Gln Pro Thr Ser Gly Gln Ala Ser Asn Thr Ser Asn
 290 295 300
 Asn Tyr Gly Asp Gly Gly Ala Ile Phe Cys Lys Asn Gly Ala Gln Ala
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 325 330 335
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 Lys Lys Leu Ser Val Ala Asn Cys Gly Pro Val Gln Phe Leu Arg Asn
 355 360 365
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 370 375 380
 Ser Leu Ser Ala Asp Tyr Gly Asp Ile Ile Phe Asp Gly Asn Leu Lys
 385 390 395 400
 Arg Thr Ala Lys Glu Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser
 405 410 415
 Ser Gln Ala Ile Ser Met Gly Ser Gly Lys Ile Thr Thr Leu Arg
 420 425 430
 Ala Lys Ala Gly His Gln Ile Leu Phe Asn Asp Pro Ile Glu Met Ala
 435 440 445
 Asn Gly Asn Asn Gln Pro Ala Gln Ser Ser Lys Leu Leu Lys Ile Asn
 450 455 460
 Asp Gly Glu Gly Tyr Thr Gly Asp Ile Val Phe Ala Asn Gly Ser Ser
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<212> DNA

<213> Chlamydia sp.

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<211> 20

<212> DNA

<213> Chlamydia sp.

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20

<210> 20

<211> 22

<212> DNA

<213> Chlamydia sp.

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22

<210> 21

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Recombinant Expression Vector

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<211> 3324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Recombinant Expression Vector

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<211> 65

<212> PRT

<213> Chlamydia sp.

<400> 25

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Ser	Cys	Phe	Gly	Asn	Leu	Leu	Gly	Ser	Phe	Thr	Val	Leu	Gly	Arg	Gly
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65

<210> 26

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<211> 24

<212> PRT

<213> Chlamydia sp.

<400> 26

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 Ser Leu Leu Ala Asn Asn Ala Val
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<210> 27

<211> 8

<212> PRT

<213> Chlamydia sp.

<400> 27

Gly Tyr Thr Gly Asp Ile Val Phe
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<210> 28

<211> 7

<212> PRT

<213> Chlamydia sp.

<400> 28

Tyr Gly Asp Ile Ile Phe Asp
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<210> 29

<211> 63

<212> PRT

<213> Chlamydia sp.

<400> 29

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 35 40 45
 Ser Ile Ala Ala Leu Pro Leu Ser Cys Phe Gly Asn Leu Leu Gly
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<210> 30

<211> 22

<212> PRT

<213> Chlamydia sp.

<400> 30

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 Ile Asn Asp Gly Glu Gly
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<210> 31

<211> 14

<212> PRT

<213> Chlamydia sp.

<400> 31

Ala Asn Gly Ser Ser Thr Leu Tyr Gln Asn Val Thr Ile Glu
 1 5 10

<210> 32

<211> 10

<212> PRT

<213> Chlamydia sp.

<400> 32

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Lys Leu Ser Val Asn Ser Leu Ser Gln Thr
1 5 10

<210> 33
<211> 45
<212> PRT
<213> Chlamydia sp.

<400> 33

Val Ile Gly Ser Thr Thr Ala Gly Ser Val Thr Ile Ser Gly Pro Ile
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Phe Phe Glu Asp Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp Trp Leu
20 25 30
Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu Gln Leu
35 40 45

<210> 34
<211> 64
<212> PRT
<213> Chlamydia sp.

<400> 34

Val Ile Gly Ser Thr Thr Ala Gly Ser Val Thr Ile Ser Gly Pro Ile
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Phe Phe Glu Asp Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp Trp Leu
20 25 30
Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu Gln Leu Gly Thr Lys
35 40 45
Pro Pro Ala Asn Ala Pro Ser Asp Leu Thr Leu Gly Asn Glu Met Pro
50 55 60

<210> 35
<211> 10
<212> PRT
<213> Chlamydia sp.

<400> 35

Asp Pro Asn Thr Ala Asn Asn Gly Pro Tyr
1 5 10

<210> 36
<211> 458
<212> PRT
<213> Chlamydia sp.

<400> 36

Gly Gly Ala Cys Gln Val Val Thr Ser Phe Ser Ala Met Ala Asn Glu
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Ala Pro Ile Ala Phe Val Ala Asn Val Ala Gly Val Arg Gly Gly Gly
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35 40 45
Thr Glu Asp Pro Val Val Ser Phe Ser Arg Asn Thr Ala Val Glu Phe
50 55 60
Asp Gly Asn Val Ala Arg Val Gly Gly Gly Ile Tyr Ser Tyr Gly Asn
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115 120 125
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130 135 140
Glu Gly Val Val Phe Phe Ser Ser Asn Val Ala Ala Gly Lys Gly Gly
145 150 155 160
Ala Ile Tyr Ala Lys Lys Leu Ser Val Ala Asn Cys Gly Pro Val Gln

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Phe Leu Arg Asn Ile Ala Asn Asp Gly Gly Ala Ile Tyr Leu Gly Glu
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 Val Thr Val Ser Ser Gln Ala Ile Ser Met Gly Ser Gly Gly Lys Ile
 225 Thr Thr Leu Arg Ala Lys Ala Gly His Gln Ile Leu Phe Asn Asp Pro
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 Leu Lys Ile Asn Asp Gly Glu Gly Tyr Thr Gly Asp Ile Val Phe Ala
 Asn Gly Ser Ser Thr Leu Tyr Gln Asn Val Thr Ile Glu Gln Gly Arg
 Ile Val Leu Arg Glu Lys Ala Lys Leu Ser Val Asn Ser Leu Ser Gln
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 Thr Pro Gln Pro Pro Gln Gln Pro Pro Ala Ala Asn Gln Leu Ile Thr
 Leu Ser Asn Leu His Leu Ser Leu Ser Ser Leu Leu Ala Asn Asn Ala
 Val Thr Asn Pro Pro Thr Asn Pro Pro Ala Gln Asp Ser His Pro Ala
 Val Ile Gly Ser Thr Thr Ala Gly Ser Val Thr Ile Ser Gly Pro Ile
 385 Phe Phe Glu Asp Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp Trp Leu
 Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu Gln Leu Gly Thr Lys
 Pro Pro Ala Asn Ala Pro Ser Asp Leu Thr Leu Gly Asn Glu Met Pro
 Lys Tyr Gly Tyr Gln Gly Ser Trp Lys Leu
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<210> 37
 <211> 325
 <212> PRT
 <213> Chlamydia sp.

<400> 37
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 35 Cys Arg Gly Leu Trp Val Ser Gly Val Ser Asn Phe Phe Tyr His Asp
 50 Arg Asp Ala Leu Gly Gln Gly Tyr Arg Tyr Ile Ser Gly Gly Tyr Ser
 65 Leu Gly Ala Asn Ser Tyr Phe Gly Ser Ser Met Phe Gly Leu Ala Phe
 85 Thr Glu Val Phe Gly Arg Ser Lys Asp Tyr Val Val Cys Arg Ser Asn
 100 His His Ala Cys Ile Gly Ser Val Tyr Leu Ser Thr Gln Gln Ala Leu
 115 Cys Gly Ser Tyr Leu Phe Gly Asp Ala Phe Ile Arg Ala Ser Tyr Gly
 130 Phe Gly Asn Gln His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu Ser
 145 150 155 160

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 Asp Val Arg Trp Asp Asn Asn Cys Leu Ala Gly Glu Ile Gly Ala Gly
 165 170 175
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 195 200 205
 Glu Glu Gly Asp Gln Ala Arg Ala Phe Lys Ser Gly His Leu Leu Asn
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 275 280 285
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<220>
 <223> Description of Artificial Sequence: primer

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<400> 39
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<210> 42
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<212> PRT
<213> Chlamydia sp.

<400> 42
Glu Ile Met Val Pro Gln
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<210> 43
<211> 984
<212> PRT
<213> Chlamydia sp.

<400> 43
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Ser Ala Gly Glu Leu Thr Leu Lys Asn Leu Asp Asn Ser Ile Ala Ala
35 40 45
Leu Pro Leu Ser Cys Phe Gly Asn Leu Leu Gly Ser Phe Thr Val Leu
50 55 60
Gly Arg Gly His Ser Leu Thr Phe Glu Asn Ile Arg Thr Ser Thr Asn
65 70 75 80
Gly Ala Ala Leu Ser Asn Ser Ala Ala Asp Gly Leu Phe Thr Ile Glu
85 90 95
Gly Phe Lys Glu Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val
100 105 110
Leu Pro Ala Ala Thr Thr Asn Lys Gly Ser Gln Thr Pro Thr Thr Thr
115 120 125
Ser Thr Pro Ser Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu
130 135 140
Leu Asn Asn Glu Lys Phe Ser Phe Tyr Ser Asn Leu Val Ser Gly Asp
145 150 155 160
Gly Gly Ala Ile Asp Ala Lys Ser Leu Thr Val Gln Gly Ile Ser Lys
165 170 175
Leu Cys Val Phe Gln Glu Asn Thr Ala Gln Ala Asp Gly Gly Ala Cys
180 185 190
Gln Val Val Thr Ser Phe Ser Ala Met Ala Asn Glu Ala Pro Ile Ala
195 200 205
Phe Val Ala Asn Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val
210 215 220
Gln Asp Gly Gln Gln Gly Val Ser Ser Ser Thr Ser Thr Glu Asp Pro
225 230 235 240
Val Val Ser Phe Ser Arg Asn Thr Ala Val Glu Phe Asp Gly Asn Val
245 250 255
Ala Arg Val Gly Gly Gly Ile Tyr Ser Tyr Gly Asn Val Ala Phe Leu
260 265 270
Asn Asn Gly Lys Thr Leu Phe Leu Asn Asn Val Ala Ser Pro Val Tyr
275 280 285
Ile Ala Ala Lys Gln Pro Thr Ser Gly Gln Ala Ser Asn Thr Ser Asn
290 295 300
Asn Tyr Gly Asp Gly Gly Ala Ile Phe Cys Lys Asn Gly Ala Gln Ala
305 310 315 320
Gly Ser Asn Asn Ser Gly Ser Val Ser Phe Asp Gly Glu Gly Val Val
325 330 335
Phe Phe Ser Ser Asn Val Ala Ala Gly Lys Gly Gly Ala Ile Tyr Ala
340 345 350

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Lys Lys Leu Ser Val Ala Asn Cys Gly Pro Val Gln Phe Leu Arg Asn
 Ile Ala Asn Asp Gly Gly Ala Ile Tyr Leu Gly Glu Ser Gly Glu Leu
 Ser 355 370 385 Leu Ser Ala Asp Tyr 390 Asn Ala Ala Asp Val Asn Gly Val Thr Val Ser
 Arg Thr Ala Lys Glu 405 Met Gly Ser Gly 410 Gly Lys Ile Thr Thr 415 Leu Arg
 Ser Gln Ala Ile 420 Ser Met Gly Ser Gly 425 Gly Lys Ile Thr Thr 430 Leu Arg
 Ala Lys Ala Gly His Gln Ile Leu Phe Asn Asp Pro Ile Glu Met Ala
 Asn 435 Gly Asn Asn Gln Pro Ala 440 Gln Ser Ser Lys Leu 445 Leu Lys Ile Asn
 Asp 450 Gly Glu Gly Tyr Thr 470 Gly Asp Ile Val Phe 475 Ala Asn Gly Ser Ser
 Thr 465 Leu Tyr Gln Asn 485 Val Thr Ile Glu Gln 490 Gly Arg Ile Val Leu Arg
 Glu Lys Ala Lys 500 Leu Ser Val Asn Ser 505 Leu Ser Gln Thr Gly 510 Gly Ser
 Leu Tyr Met Glu Ala Gly Ser Thr Trp Asp Phe Val Thr 525 Pro Gln Pro
 Pro Gln Gln Pro Pro Ala 535 Asn Gln Leu Ile Thr 540 Leu Ser Asn Leu
 His 545 Leu Ser Leu Ser Ser 550 Leu Leu Ala Asn Asn 555 Ala Val Thr Asn Pro
 Pro Thr Asn Pro Pro 565 Ala Gln Asp Ser His 570 Pro Ala Val Ile Gly Ser
 Thr Thr Ala Gly 580 Ser Val Thr Ile Ser 585 Gly Pro Ile Phe Phe 590 Glu Asp
 Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp Trp Leu Gly 605 Ser Asn Gln
 Lys Ile 610 Asn Val Leu Lys Leu 615 Gln Leu Gly Thr Lys 620 Pro Ala Asn
 Ala 625 Pro Ser Asp Leu Thr 630 Leu Ala Trp Asp Pro 635 Asn Thr Ala Asn Asn
 Gln Gly Ser Trp Lys 645 Leu Ala Thr Trp Thr 650 Lys Thr Gly Tyr Asn Pro Gly
 Pro Tyr Thr Leu 660 Lys Ala Thr Trp Thr 665 Lys Thr Gly Tyr Asn Pro Gly
 Pro Glu Arg Val Ala Ser Leu Val 680 Pro Asn Ser Leu Trp Gly 685 Ser Ile
 Leu Asp Ile Arg Ser Ala His 695 Ser Ala Ile Gln Ala 700 Ser Val Asp Gly
 Arg 705 Ser Tyr Cys Arg Gly 710 Leu Trp Val Ser Gly 715 Val Ser Asn Phe Phe
 Tyr His Asp Arg Asp 725 Ala Leu Gly Gln Gly 730 Tyr Arg Tyr Ile Ser Gly
 Gly Tyr Ser Leu Gly 740 Ala Asn Ser Tyr 745 Phe Gly Ser Ser Met Phe Gly
 Leu Ala Phe Thr Glu Val Phe Gly 760 Arg Ser Lys Asp Tyr Val Val Cys
 Arg Ser Asn His His Ala Cys 775 Ile Gly Ser Val Tyr Leu 780 Ser Thr Gln
 Gln 785 Ala Leu Cys Gly Ser Tyr Leu Phe Gly Asp Ala Phe Ile Arg Ala
 Ser Tyr Gly Phe Gly 805 Asn Gln His Met Lys 810 Thr Ser Tyr Thr Phe Ala
 Glu Glu Ser Asp Val Arg Trp Asp Asn 825 Cys Leu Ala Gly 830 Glu Ile
 Gly Ala Gly Leu Pro Ile Val Ile Thr Pro Ser Lys Leu 845 Tyr Leu Asn
 Glu Leu Arg Pro Phe Val Gln Ala Glu Phe Ser Tyr Ala Asp His Glu

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850	855	860
Ser Phe Thr Glu Glu Gly Asp Gln Ala Arg Ala Phe Lys Ser Gly His		
865	870	875
Leu Leu Asn Leu Ser Val Pro Val Gly Val Lys Phe Asp Arg Cys Ser		
885	890	895
Ser Thr His Pro Asn Lys Tyr Ser Phe Met Ala Ala Tyr Ile Cys Asp		
900	905	910
Ala Tyr Arg Thr Ile Ser Gly Thr Glu Thr Thr Leu Leu Ser His Gln		
915	920	925
Glu Thr Trp Thr Thr Asp Ala Phe His Leu Ala Arg His Gly Val Val		
930	935	940
Val Arg Gly Ser Met Tyr Ala Ser Leu Thr Ser Asn Ile Glu Val Tyr		
945	950	955
Gly His Gly Arg Tyr Glu Tyr Arg Asp Ala Ser Arg Gly Tyr Gly Leu		
965	970	975
Ser Ala Gly Ser Arg Val Arg Phe		
980		